Ford Motor Company

ENGINEERING MATERIAL SPECIFICATION

Material Name	Specification Number
IGNITION CABLE, HIGH TENSION, RESISTANCE CORE (FIBER GLASS) SILICONE JACKET AND EPDM INSULATION (8 mm)	**ESE-M1L100-A**

1. SCOPE

The material defined by this specification is a high grade heat, moisture and corona resistant ignition cable, with sufficient conductor resistance to suppress electrical components in the ignition system which could cause radio interference.

2. APPLICATION

This specification was released originally for material used for maximum performance in tractor and automotive type engines.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.1 CABLE CONSTRUCTION

3.1.1 Conductor

The conductor shall consist of 60 ends of ECG 150 strand glass conductive roving uniformly treated with carbon. An optional binder yarn, which consists of ECG 150 1/0 Z 39 tpm, may be used as a manufacturing aid.

This is covered with ECG 75 1/0, 1 end natural glass braid using 8 heads on a 16 head braider, with 28 +/- 4 picks/100 mm and a basket (one over one) weave. Over the braid there shall be extruded high temperature thermosetting conductive silicone. The core shall then be vulcanized (thermally cured). The finished conductor shall be smooth and have a diameter of 2.44 +/- 0.13 mm, with a minimum conductive silicone wall thickness of 0.25 mm.

3.1.2 Conductor Insulation

The conductor shall be coated with a covering of EPDM rubber, placed concentrically within 0.25 mm around the conductor. The diameter of the insulated conductor must not exceed 6.48 mm. The minimum diameter is limited only by the performance tests hereinafter required.

Date	Action	Revisions	
2003 04 28	Revised	Para 3.0 inserted; Para 3.4, 3.5, 3.6, 3.7, 3.8, 4 deleted	
1994 04 13	NE01-E-10127076-125	Revised 3.1, 3.2& 3.2	E. Duda
1975 07 01	CE3EEC774588E2	Released (was XE-M1L8-A)	D.N. Schock

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3.1.3 Reinforcing Braid

The insulated conductor shall have a glass braid covering. This skeleton braid shall consist of fiber glass yarns per commercial designation ECG 75 1/0, 1 end natural glass, 16 heads, 55 +/- 4 picks/100 mm, two over and two under.

3.1.4 Outer Jacket

Over the insulated conductor there shall be applied a protective coating of silicone rubber, flame, heat, corona, water and oil resistant. The surface of the finished cable shall be smooth, even and free from any tackiness due to compounds used in assembly or where specified. A minimum wall thickness of 0.51 mm must be maintained. Jacket color shall be as specified on the Engineering Drawing.

3.2 FINISHED CABLE

3.2.1	Diameter	7.75 - 8.26 mm
3.2.2	Resistance (FLTM BB 101-11, Test I)	16400 +/- 6560 ohms/m
3.2.3	Capacitance, max (FLTM BB 101-11, Test II)	197 pF/m
3.2.4	Tensile Strength	No rupture or separation

Test Method: FLTM BB 101-11, Test III, except use 56.7 kg weight.

3.2.5 Corona Resistance — No failure

Test Method: FLTM BB 101-11, Test IV, except Step 1 - 1372 mm length, Step 2 - tape 406 mm from end, Step 6 - 43.2 mm sleeve, and Steps 8 and 9 - 20 kV AC source. At end of 5 h increase voltage to a minimum of 30 kV AC without cable failure. Test should be repeated if failure occurs at point where cable is secured to mandrel or outside the specified five turns.

3.2.6 High Potential — No burning over the end or rupture of insulation

Test Method: FLTM BB 101-11, Test V, except Step 1 - 762 mm length, Step 7 - 229 mm protrusion, and Step 10 - 25 kV AC. At end of 5 minutes increase voltage to a minimum of 32 kV AC without cable failure.

3.2.7 Heat Resistance — No failure

Test Method: FLTM BB 101-11, Test VI, except Step 1 - 1067 mm length, Step 2 - 205 +/- 2 °C, Step 3 - 25 mm mandrel, Step 8 - 229 mm protrusion, Step 9 - 20 kV AC, and Steps 10 and 11 - 25 kV AC.

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